

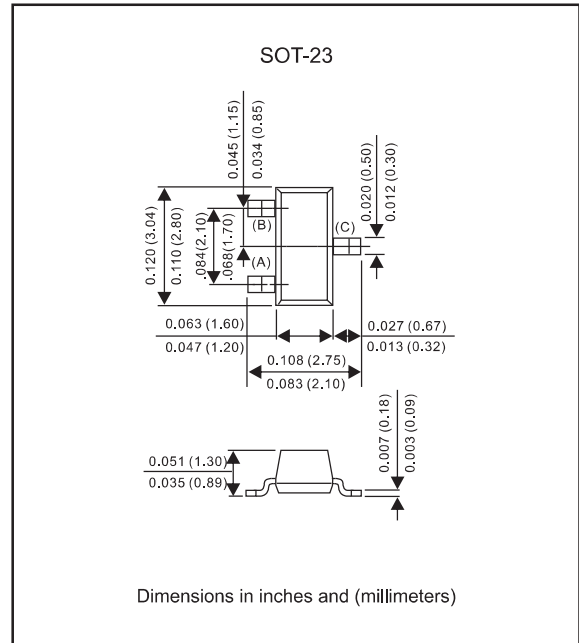
Features

- Fast speed switching.
- For general purpose switching application.
- High conductance.
- Silicon epitaxial planar chip.
- Lead-free parts meet RoHS requirements.
- Compliant to Halogen-free

Mechanical data

- Epoxy: UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-23
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any

Package outline



Maximum ratings (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	BAL99	BAV99	BAW56	BAV70	UNIT
Reverse Voltage	V_R	70				V
Forward Current	I_F	100	215	200		mA
Peak Forward Surge Current	I_{FM}	500				mA
Non-Repetitive Peak Forward Surge Current @ $t=1.0\mu\text{s}$ @ $t=1.0\text{s}$	I_{FSM}	2.0 1.0				A

Thermal Characteristics

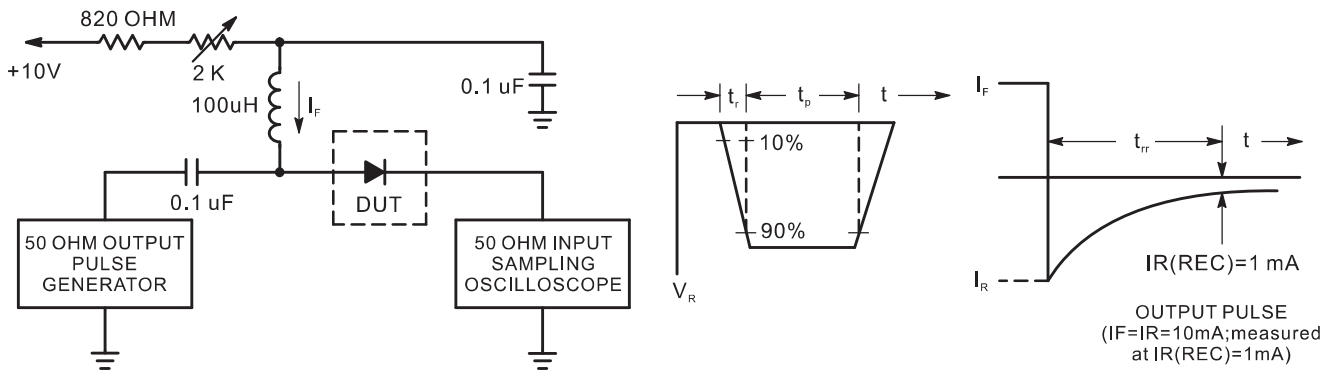
PARAMETER	SYMBOL	MAX.	UNIT
Total Device Dissipation FR-5 Board* ¹ , $T_A = 25^\circ\text{C}$ Derate Above 25°C	P_D	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate* ² , $T_A = 25^\circ\text{C}$ Derate Above 25°C	P_D	300 2.4	mW mW/ $^\circ\text{C}$
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	417	$^\circ\text{C}/\text{W}$
Operating Temperature Range	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-65 ~ +150	$^\circ\text{C}$

1. FR-5 = 1.0 x 0.75 x 0.062 in.
 2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

Electrical Characteristics (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	MIN.	MAX.	UNIT
Reverse Breakdown Voltage($I_{BR}=100\mu\text{A}$)	V_{BR}	70		V
Reverse Voltage Leakage Current (at $V_R = 70\text{V}$, $T_J = 25^\circ\text{C}$)BAL99/BAV99/BAW56/BAV70 (at $V_R = 25\text{V}$, $T_J = 150^\circ\text{C}$)BAL99/BAV99/BAW56 (at $V_R = 25\text{V}$, $T_J = 150^\circ\text{C}$)BAV70 (at $V_R = 70\text{V}$, $T_J = 150^\circ\text{C}$)BAL99/BAV99/BAW56 (at $V_R = 70\text{V}$, $T_J = 150^\circ\text{C}$)BAV70	I_R		2.5 30 60 50 100	μA
Diode Capacitance($V_R = 0\text{V}$, $f = 1.0\text{MHz}$) BAL99/BAV99/BAV70 BAW56	C_D		1.5 2.0	pF
Reverse Recovery Time($I_F = I_R = 10\text{mA}$, $V_R = 5.0\text{Vdc}$, $I_R(\text{REC}) = 1.0\text{mA}$, $R_L = 100_{\text{OHM}}$)	t_{rr}		6.0	ns
Forward Voltage (at $I_F = 1.0\text{mA}$) (at $I_F = 10\text{mA}$) (at $I_F = 50\text{mA}$) (at $I_F = 150\text{mA}$)	V_F		715 855 1000 1250	mV

Recovery Time Equivalent Test Circuit



- Notes :
1. A2.0 Kohm variable resistor adjusted for a forward Current (I_F) of 10mA.
 2. Input pulse is adjusted so $I_R(\text{peak})$ is equal to 10 mA.
 3. $t_p \gg t_{rr}$.

Rating and characteristic curves for each diode (BAL99/BAV99/BAW56/BAV70)

FIG.1-TYPICAL FORWARD CHARACTERISTICS

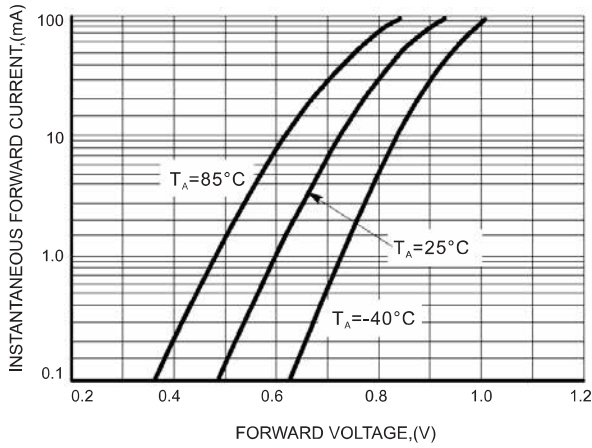


FIG.2 - TYPICAL REVERSE CHARACTERISTICS

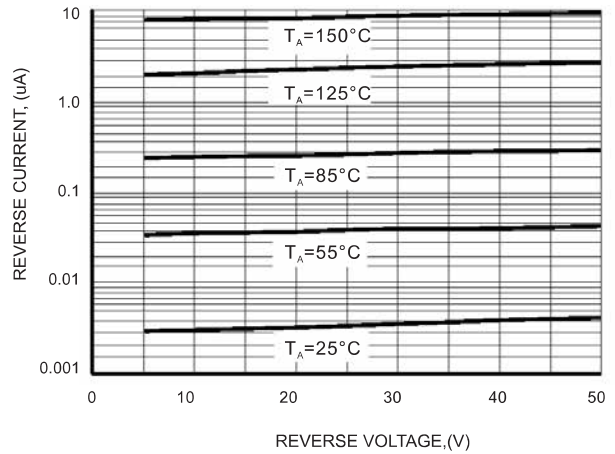


FIG.3a - TYPICAL DIODE CAPACITANCE BAL99/BAV99/BAV70

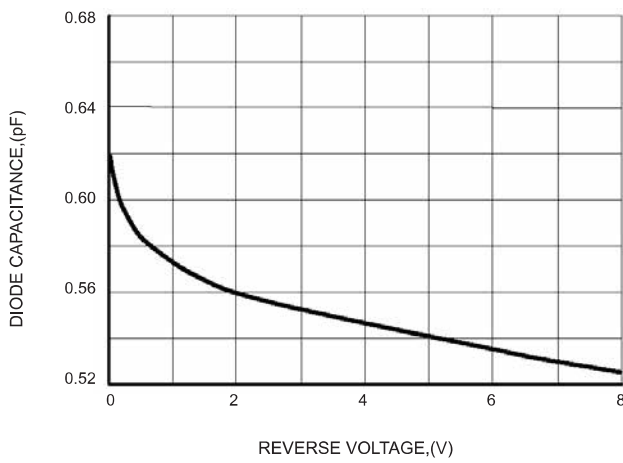
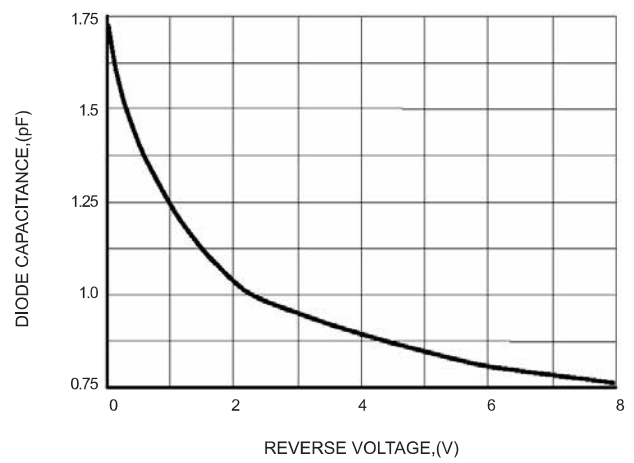
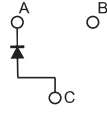
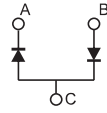
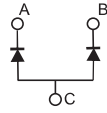
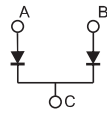


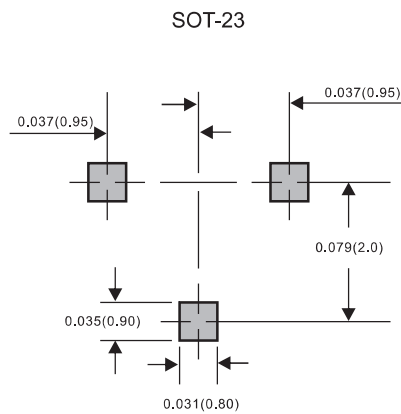
FIG.3b - TYPICAL DIODE CAPACITANCE BAW56



Pinning information

Type number	Marking code	Symbol
BAL99	L4, A6, JF	
BAV99	JG, A7	
BAW56	JC, A1	
BAV70	JA, A4	

Suggested solder pad layout



Dimensions in inches and (millimeters)